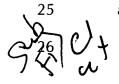
3	a semiconductor substrate having a surface, a portion of said surface having
4	silicon thereon and a portion of said surface having an insulator thereon,
5	said surface further having an oxide thereover;
6	a chamber;
7	at least one workpiece holder within said chamber adapted to hold said
8 9 0	substrate;
3/4/	at least one pump adapted to evacuate said chamber to maintain a continuous
100	vacuum in said chamber;
11	at least one line operatively connected between said at least one pump and
12 (said chamber for evacuating said chamber;
13	at least one input line adapted to provide a chemical agent into said chamber
14	while in said continuous vacuum, said chemical agent adapted to remove
15	said oxide from said surface of said substrate;
16	at least one output line adapted to remove said cleaning agent and said
17	removed oxide from said chamber;
18	a reactor in said chamber, said reactor adapted to deposit a metal onto said
19	silicon and insulator portions on said substrate surface while in said
20	continuous vacuum;
21	a heating element, said heating element adapted to heat said substrate to an
22	elevated temperature to form a silidide on said substrate surface over the
23	silicon portion by reaction with the metal deposited thereon, while the
24	metal remains unreacted over the insulator portion; and



an etchant to remove unreacted metal from the substrate surface while leaving said silicide over portions of said semiconductor substrate.

Please add new claims 21-30.

21. A system for selectively forming a silicide on a surface of a semiconductor 2 substrate comprising: said semiconductor substrate having said surface, a portion of said surface 3 having silicon thereon and a portion of said surface having an insulator 4 thereon, said surface further having an oxide thereover; a chamber; at least one pump adapted to evacuate said chamber to maintain a continuous vacuum in said chamber; 8 a chemical agent input into said chamber adapted to remove said oxide from 9 Asaid surface of said substrate while said chamber is under said continuous 10 vacuum; 11 a reactor in said chamber, said reactor adapted to deposit a metal onto said 12 silicon and insulator portions on said substrate surface while under said 13 14 continuous vacuum; a heating element, said heating element adapted to heat said substrate to an 15 elevated temperature to form a silicide on said substrate surface over the 16

17	silicon portion by reaction with the metal deposited thereon, while	the
18	metal remains unreacted over the insulator portion; and	
19	an etchant to remove unreacted metal from the substrate surface while leav	/ing
20	said silicide over portions of said semiconductor substrate.	

22. The system of claim 21 wherein said chamber comprises a plurality of interior chambers, at least one interior chamber adapted to remove said oxide from said surface of said substrate while under said continuous vacuum, and at least one interior chamber adapted to deposit said metal on said surface of said substrate while under said continuous vacuum.

- 23. The system of claim 22 wherein said apparatus is adapted to transfer said substrate between said interior chamber adapted to remove said oxide from said surface of said substrate and said interior chamber adapted to deposit said metal on said surface of said substrate without breaking said continuous vacuum.
- 24. The system of claim 21 wherein said metal is cobalt.
- 1 25. The system of claim 21 wherein said chemical agent is selected from the group consisting of nitrogen triflouride and argon.

1	26. The system of claim 21 wherein said reactor for depositing said metal or
2	said surface of said substrate is a vapor sputtering device.
1	27. The system of claim 21 wherein said heating element resides within said
2	chamber.
1	28. The system of claim 21 wherein said heating element is external thereto
2	said chamber.
G CONTRACTOR OF THE CONTRACTOR	29. The system of claim 21 wherein said unreacted cobalt is removed using an etchant comprising hydrogen peroxide and sulfuric acid.
1	30. An apparatus in combination with a semiconductor substrate for selectively
2	forming a silicide thereon a surface of said semiconductor substrate comprising:
3	a portion of said semiconductor substrate surface having silicon thereon and a
4	portion of said surface having an insulator thereon, said surface further
5	having an oxide thereover;
6	a chamber;
7	at least one workpiece holder within said chamber adapted to hold said
8	semiconductor substrate;
9	at least one numn adapted to evacuate said chamber to maintain a continuous

vacuum in said chamber;

at least one line operatively connected between said at least one pump an
said chamber for evacuating said chamber;
at least one input line adapted to provide a chemical agent into said chambe
while in said continuous vacuum, said chemical agent adapted to remov
said oxide from said surface of said substrate;
at least one output line adapted to remove said cleaning agent and said
17 removed oxide from said chamber;
18 a reactor in said chamber, said reactor adapted to deposit a metal onto said
19 Silicon and insulator portions on said substrate surface while in said
20 continuous vacuum;
a heating element, said heating element adapted to heat said substrate to a
elevated temperature to form a silicide on said substrate surface over the
silicon portion by reaction with the metal deposited thereon, while the
metal remains unreacted over the insulator portion; and
an etchant to remove unreacted metal from the substrate surface while leaving
said silicide over portions of said semiconductor substrate.
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